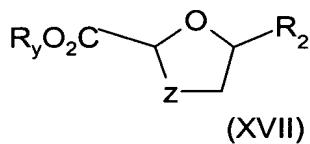


Cl
Sub
OS

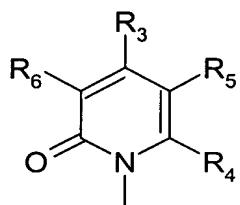
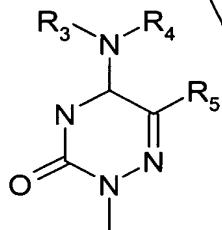
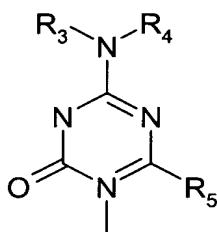
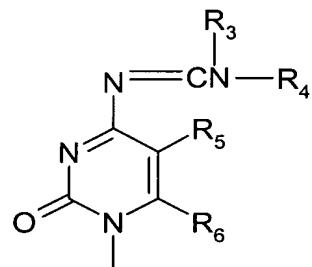
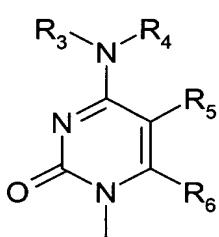
reacting the compound of formula (XVI) with a silylated R₂- compound, in the presence of a Lewis acid, whereby said leaving group is displaced, to produce a compound of formula (XVII):



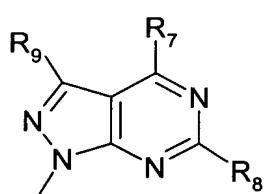
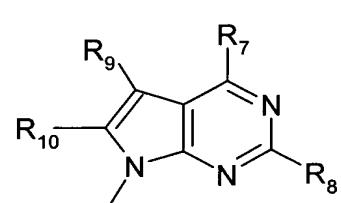
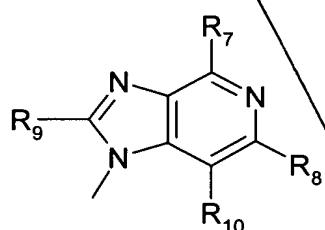
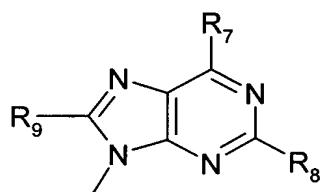
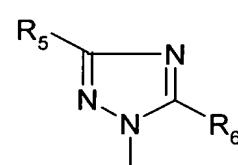
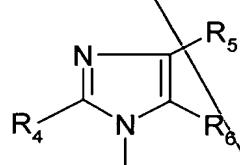
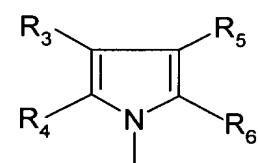
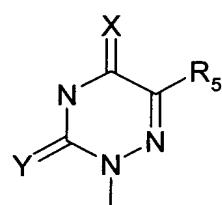
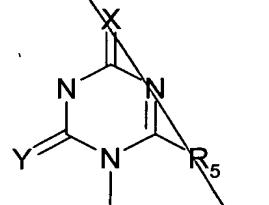
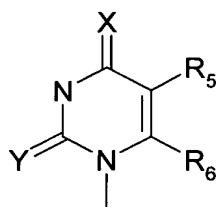
wherein

Z is S;

R₂ is selected from the following group:

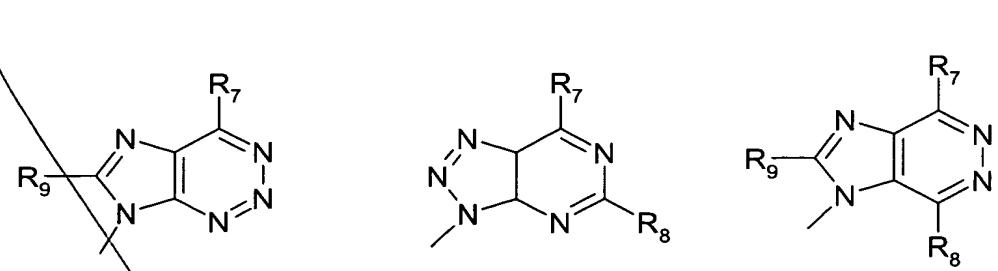


IAF-1/2 C11



IAF-1/2 C11

✓
Sv
DS



X is oxygen or sulfur;

Y is oxygen or sulfur;

R₃ and R₄ are independently selected from hydrogen, hydroxyl, amino, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyl or aracyl;

R₅ and R₆ are independently selected hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxy carbonyl, hydroxymethyl, trifluoromethyl, thioaryl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy;

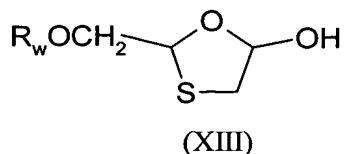
R₇ and R₈ are independently selected from hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, halogen, cyano, carboxy, alkoxy carbonyl, carbamoyl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

R₉ and R₁₀ are independently selected from the hydrogen, hydroxy, alkoxy, amino, halogen, azido, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy.

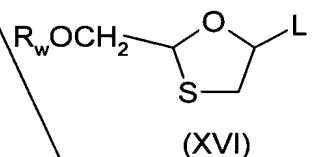
IAF-1/2 C11

75. A process comprising:

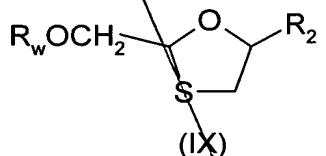
reacting a mercaptoacetaldehyde with a compound of formula R_wOCH_2CHO , under neutral or basic conditions, wherein R_w is hydrogen or a hydroxyl protecting group to obtain a compound of formula (XIII)



converting the hydroxyl of the compound of formula (XIII) to a leaving group L to obtain a compound of formula (XIV):



reacting the compound of formula (XIV) with a silylated purine or pyrimidine base or derivative thereof R_2 , in the presence of a Lewis acid, said leaving group is displaced, to produce a compound of formula (IX):

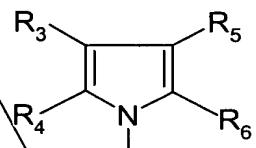
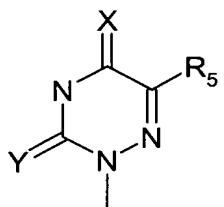
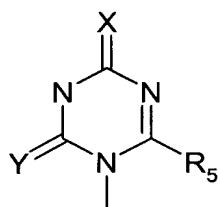
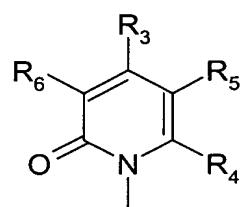
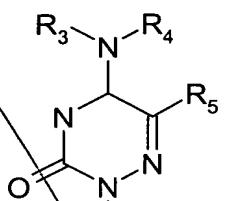
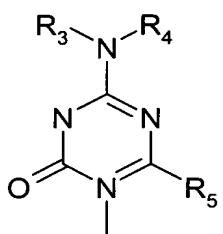
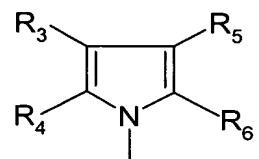
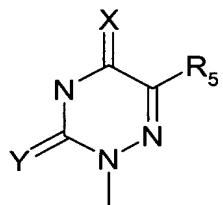
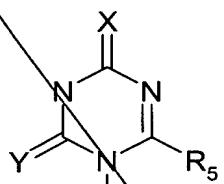


wherein

Z is S, and

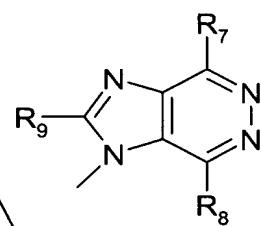
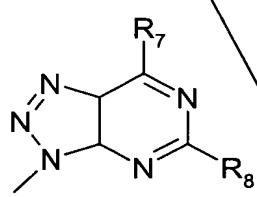
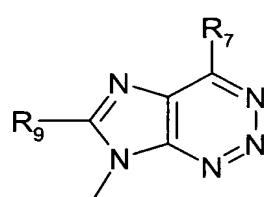
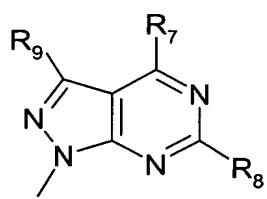
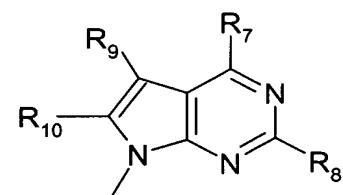
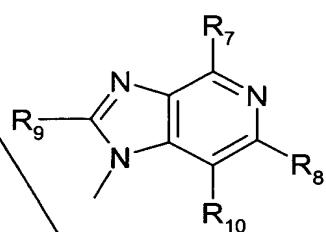
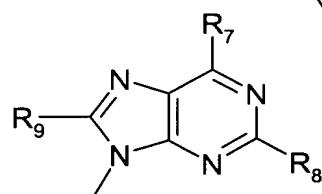
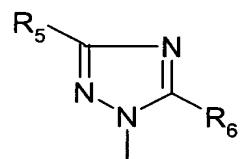
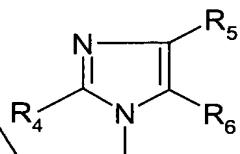
R_2 is selected from the following group:

✓
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DS



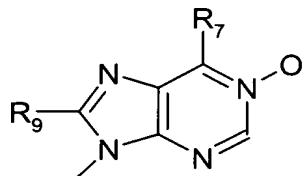
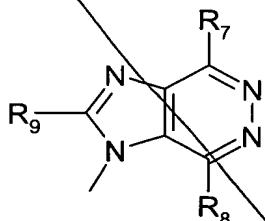
IAF-1/2 C11

C
S
D



IAF-1/2 C11

er
sub
DS



X is oxygen or sulfur;

Y is oxygen or sulfur;

R₃ and R₄ are independently selected from hydrogen, hydroxyl, amino, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyl or aracyl;

R₅ and R₆ are independently selected hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxy carbonyl, hydroxymethyl, trifluoromethyl, thioaryl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy;

R₇ and R₈ are independently selected from hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, halogen, cyano, carboxy, alkoxy carbonyl, carbamoyl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

R₉ and R₁₀ are independently selected from the hydrogen, hydroxy, alkoxy, amino, halogen, azido, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy.